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Is it epilepsy?

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Abstract

Detainees in police stations frequently claim to suffer from epilepsy. The diagnosis of epilepsy is not always straight forward and a misdiagnosis can be easily made, even by specialists.

The case of a detained person claiming to suffer from epilepsy is described. The differential diagnosis and management is discussed with particular attention given to non epileptic attack disorder and the problems that this condition may cause for the examining forensic physician.

Keywords: Epilepsy; Nonepileptic attack disorder; Fitness for detention; Seizure; Misdiagnosis; Pseudoseizure

1. The case

As a forensic physician, I was asked to examine a detained person (DP) to ascertain his fitness for detention. The 25-year old detained male had been arrested on warrant and was to be held in custody for 2 days over a weekend. I had been informed that he had just had a fit. On arrival at the police station, I was taken directly to the cell to assess the DP since he apparently had just had another "fit". The male person was lying on his back on a mattress on the floor, seemingly unresponsive with his eyes closed. His airway was well maintained and he was breathing normally. He resisted eye opening and on sternal pressure, he responded briskly and quickly became alert, orientated and announced that he had just had another "fit".

His past medical history revealed a 4–5 month history of what he described as fits. On one occasion while in detention, he had been taken to casualty because of this and was admitted. There was no clear history of what happened during these episodes, simply that he passed out. There were no witnesses. He was not taking any routine prescribed medication, alcohol misuse was denied but he did admit to intermittent use of heroin over the previous 6 months, the last injection being 36 h before. He claimed to be prescribed diazepam 10 mg 6 daily, the last dose of 10 mg having been taken that morning. He stated that he had already had 4 fits that morning and that he needed to go to hospital.

On examination, there was no agitation, Glasgow Coma Score 15 and his pulse, blood pressure and temperature were all normal. Eye movements and pupillary response were normal with no signs of any form of drug withdrawal. There was no evidence of head injury. During the examination the DP suddenly sat forwards and announced that he was just about to have another fit. He then proceeded to hold his breath, become red faced and then collapsed backwards on the mattress. Some irregular shaking of his limbs occurred but there was no true jerking. This lasted for approximately 15–20 s and then it all stopped, with the custody then saying "look, I need to go to hospital".

The detainee was reassured that he had not had a seizure and that he did not need to go to hospital. It was explained that holding his breath may have caused his funny turn. He was found fit to be detained and was moved to an observation cell with CCTV coverage at the request of the duty Inspector. During the move between cells he had another "fit", but this time no fuss was made and he was simply asked to get up, which he duly did.

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The following day the detainee was reviewed at his request, for symptoms of opiate withdrawal. No further ''fits'' had occurred and examination revealed mild signs of opiate withdrawal and he was prescribed an appropriate amount of dihydrocodeine to help his symptoms. No further contacts were made after this.

2. Epilepsy

Epilepsy is derived from the Greek word meaning ''to take hold of'' or ''to seize''. It affects between 5 and 10 people/1000 and so is not an uncommon condition. Particular importance must, however, be placed on the safe diagnosis of this condition because of the implications it has both for the sufferer and also for the persons caring for that individual. Seizures are not always straightforward to diagnose. A seizure is an ''episodic disturbance of movement, feeling or consciousness caused by sudden, synchronous, inappropriate and excessive electrical discharges in the cerebral cortex''.[1] Syncope or faints, which are the most common conditions misdiagnosed as seizures, are not associated with this disturbance. However clinically they can be associated with some jerking/twitching movements, rolling of the eyes and also with urinary incontinence which can be easily mistaken for a seizure, even by medically trained persons. Faints are the commonest reason for Electroencephalogram (EEG) requests and since approximately 20% of the population have non specific abnormalities on EEG testing,[2] in inexperienced hands it can be seen why a mistaken diagnosis of epilepsy can often be made. In a live internet lecture on developments in epilepsy by Professor David Chadwick from the Royal College of Physicians in London April 2003,[3] he stated that ''the EEG was the most dangerous investigation known to man'' although not everyone may agree with this. Even in patients with true epilepsy, 50% show no epileptiform abnormalities on an EEG recording.[1]

The history of the event and a reliable witness to the episode are probably the most important and informative factors in diagnosing a seizure.[6] Even if the story does suggest a true seizure, this does not confer a diagnosis of epilepsy per se. One study has shown that 40% of incident seizures are symptomatic of an acute systemic or cerebral disturbance rather than epilepsy.[4] In adults, withdrawal from alcohol is the commonest reason for this.[5] In these situations, no specific treatment is required apart from avoiding the provoking trigger and treating the underlying cause. However if dealing with an alcoholic with a history of seizures who shows signs of alcohol withdrawal, consideration must be made to cover the withdrawal with a benzodiazepines to reduce the chance of further seizures.[13] If in police custody this would be almost mandatory and admission to hospital should also be considered in these circumstances if the history of true seizures is a strong one.

Once a true unprovoked seizure has been confidently diagnosed, then no treatment is usually recommended since there is a less than 50% likelihood of recurrence.[1] If there has been more than one well documented seizure, preferably witnessed, then the seizure type should be classified into a specific epilepsy syndrome which then determines the best form of treatment. Not all recurring seizures are treated with antiepileptic drugs. If they have been widely separated or have been provoked by alcohol or drugs in an individual where compliance is likely to be poor, then treatment may not be recommended.

3. Misdiagnosis

Diagnosis of epilepsy is not easy. Only about 50% of referrals made to tertiary epilepsy centres have true epilepsy, the rest having non epileptiform seizures (mainly faints, cardiac dysrhythmias).[5] Twenty percent of these ''others'' are made up of the so called pseudoseizures (psychogenic/hysterical seizure) or now termed non epileptic attack disorder (NEAD).[7] Up to 20% of patients referred to to epilepsy centres with what was thought to be refractory epilepsy, turn out to actually have NEAD, suggesting misdiagnosis.[7] If a person is taking anticonvulsants, it is assumed they probably do have epilepsy and this can lead to false assumptions.[8] This may then influence a doctor's history taking, who then may use suggestive terms, such as ''warnings'', ''loss of consciousness'', ''tongue biting'' etc. Since high levels of suggestibility have been reported in patients with NEAD,[9] it can easily be seen how this all adds to the genesis of a misdiagnosis.

4. Nonepileptiform attack disorder (NEAD)

Psychogenic or pseudoseizures are terms that have been used for a long time to describe this form of disorder. However it has been suggested that these terms should not be used, since they imply an intentionality that is inconsistent with the disorder.[7] Pseudoseizures are as real as epileptic seizures to the individual concerned and only very rarely does the person who suffers from them try to deceive. NEAD is the term best used to describe this entity and refers to ''recurring paroxysmal episodes which resemble epileptiform attacks but lack the characteristic clinical and EEG features''.[10]

Doctors are increasingly recognising NEAD and the difficulties in its diagnosis and management. As well as being an entity in itself, it can also coexist with true epilepsy making differentiation between the two disorders difficult, even for specialists.

5. Risk factors for NEAD

NEAD is commoner in females and young adults. People who suffer from NEAD are likely to have experienced a seizure already (possibly febrile as a child) or to have witnessed a friend or family member having one.[10] They are also more likely to suffer from neurological or physical disease and also from depression and anxiety.

NEAD has also been associated with previous sexual abuse during childhood or adulthood.[10] This may account

for the higher incidence in women. Bowman has reported in one study of 27 outpatients, 88% had sustained significant trauma, including sexual abuse/rape (77%) and physical abuse (70%).[11] An environment of physical, emotional and sexual abuse as a child (either experienced or witnessed) with the subsequent dysfunctional development into adulthood is probably more relevant than the abuse itself in the association with NEAD.

The general feeling is that NEAD reflects some underlying psychological trauma and that it becomes a habitual response to coping with stress, a way of removing themselves from the realities of life.

6. Diagnosis

The diagnosis of NEAD is one of exclusion. Epilepsy and other physiological illnesses need to be excluded first. Five main criteria are useful in establishing a diagnosis:[10]

1. Ineffectiveness of anticonvulsant treatment.
2. Description of ictal behaviour that is inconsistent with an epileptic event.
3. A normal EEG during and after seizures.
4. Video EEG telemetry revealing a normal EEG during an episode.
5. Evidence of psychological problems peculiar to people with NEAD.

Video EEG telemetry is the gold standard investigation for people who may suffer from NEAD.[6] It is only performed in tertiary centres where over a 4–5 day period, the person is observed with simultaneous video and EEG recording to try and catch an episode. The event is then watched in conjunction with the EEG recording and then hopefully a more definitive diagnosis can then be made.

7. Clinical features

The ictal behaviour is extremely diverse in people with NEAD.[7,10] The movements are often not synchronous with no particular pattern. There may be a lot of thrashing about, kicking and biting. Hyperventilation, breath holding and gasping may occur and pelvic thrusting is often described (psychoanalysts have associated this pelvic thrusting in victims of sexual assault as an ''acting out'' of intrusive and vivid memories of the rape).[12] There may be unusual vocalisations or noises made at the onset and following the collapse, there is often a more prolonged period of total unresponsiveness lasting several minutes or more (compared to an epileptic seizure). On examination, eye opening is actively resisted, the eyes often will look away from the examiner and pupillary response is usually normal (in epilepsy the eyes usually stare straight ahead and the pupils are often dilated with little response). Incontinence and injury may also occur in NEAD.

Betts[7] have tried to classify the main types of NEAD events, based on underlying psychological concepts. These are the ''swoon'', the ''abreactive'' attacks and the ''tantrum''. The swoon (eyes closed, sinking to the floor lying still with flickering of the eyelids) is thought to be an unconscious cut off behaviour from either an unpleasant thought or situation. The abreactive attack includes gasping, breathholding, back arching, pelvic thrusting and general thrashing of limbs. A tantrum usually results in the person throwing themselves to the ground, screaming, kicking violently, biting and scratching and these features all get worse if restraint is applied. This is associated with attention seeking. This psychoanalytical model is only an association and it is not always possible to categorize a NEAD into one of these descriptions, but it still remains useful. It is accepted though that the most common features of NEAD events are their bizarre presentation in comparison to most seizures that have an organic basis.

8. Treatment

If a person does present with a NEAD it is best not to confront them or suggest that the ''seizures'' are made up or put on. The person should be listened to since the attacks are real to them and will likely reflect some underlying psychological problem. It can be stressed in a positive and reassuring manner that the attacks are not epileptic in nature and that they may represent some stress or emotion in their lives which is somehow manifested by these attacks. Psychological factors, such as abuse and childhood experiences need to be explored by referral to a psychologist. Family and friends need to be encouraged to try and handle an attack with a ''no fuss'' approach and to deal with the situation calmly, avoiding any positive reinforcement or gain for the person, while attack free periods need to be reinforced by praise. Anticonvulsant drugs should be slowly withdrawn one by one under medical supervision. Many patients can learn to cope better and not have a NEAD but relapses at times of stress may well still occur.

Finally it must be remembered that some unusual forms of epilepsy can display bizarre behaviour and movements (such as complex partial status epilepticus), as can hypoglycaemia.

9. The case presented

The case described earlier appeared to be a breathholding attack and was clearly non epileptic. It was not clear as to whether the attacks happened in any other circumstances other than in custody, but on this occasion they did seem deliberate, in an attempt to gain removal from custody to hospital.

When faced with a DP in custody who gives a history of ''fits'' or ''seizures'', it is important to ascertain:

(a) A clear description of the attack (witness if possible).
(b) How long they have had them and when the last one was.

(c) Any provoking factors (alcohol, drugs, injury or illness).
(d) Medication being taken (but NOT TO ASSUME epilepsy just because antiepileptic drugs are being taken).

Hopefully based on this information, a considered opinion can be made as to the likelihood of the attacks being true epileptiform seizures and likelihood of recurrence while in custody. Alcohol withdrawal seizures are potentially dangerous and anyone with a history of alcohol dependance with possible seizures during withdrawal should be considered for benzodiazepine cover once signs of this begin.[13] If it is decided that the DP does have epilepsy, then careful observation during their stay must be made.

Epilepsy itself confers an additional risk of sudden adult death (may be up to 40 times higher in young adults with epilepsy compared to those without)[14] and so if alcohol and or drugs are also involved, this additional risk makes close observation all the more important (although alcohol in one study did not appear to increase this risk for sudden unexpected death in epilepsy or SUDEP).[15] The main risk factors for SUDEP appear to be multi anticonvulsant therapy and poor seizure control.[15,16] Is is not known what the terminal event is in SUDEP, but cardiac dysrhythmia has been felt to be the likely reason. Another hypothesis that is presently being considered is that a natural occurring cerebral chemical (thought to be endorphin) is produced in excess during a prolonged seizure and this causes central apnoea resulting in hypoxia and death.[3]

There is also evidence that epileptics have a higher incidence of suicide which adds to their vulnerability.[17]

10. Custodial setting

If the DP is felt to have epilepsy, then precautions as above need to be taken. If one seizure does occur, consideration for fitness for detention and disposal to hospital should be reassessed. If it is felt that true seizures are unlikely, then probably the DP has either NEAD (if chronic with underlying psychological problems peculiar to this are present) or is a ''malingerer'' i.e., presents symptoms that are deliberate and have a positive gain. The latter is probably the easiest to deal with and the case presented probably falls into this group. A NEAD can be more problematic to deal with in the short term because of the underlying psychological problems and this in itself would confer a higher risk for self harm and likely make care more difficult while in custody. A sympathetic and caring approach is likely to reap more rewards, since as described earlier, the attacks are real to the DP and rarely do they try to deceive.

11. Summary

Epilepsy and NEAD are conditions that present not too infrequently in the custodial setting. It is important to try and distinguish exactly the type of ''fits'' a person suffers from and not to ignore them as trivial and unlikely. Assumptions should not be made. Epilepsy per se confers an added risk of sudden death and also suicide, as well as the associated health risks from a seizure itself. A diagnosis of NEAD would suggest a significant degree of psychological upset exists within that person. With this in mind, anyone held in police custody suffering from these disorders needs to be treated as high risk and vulnerable and require assessment by a forensic physician.

References

1. Brodie M, French J. Management of epilepsy in adolescents and adults. *Lancet* 2000;**356**:323–9.
2. Smith D, Bartolo R, Pickles R, et al. Requests for EEG in a District General Hospital. *British Medical Journal* 2001;**322**:954–8.
3. Chadwick D. *Royal College of Physicians*. London (a live Internet lecture on Epilepsy); April 2003.
4. Annegers JF, Hauser W, Lee J, et al. Incidence of acute symptomatic seizures in Rochester, Minnesota 1915–1984. *Epilepsia* 1995;**36**:327–33.
5. Chadwick D, Smith D. The misdiagnosis of epilepsy. *British Medical Journal* 2002;**324**:495–6.
6. Diagnosis and management of epilepsy in adults. Scottish Intercollegiate Guideline Network No.70 April 2003.
7. Betts T. Pseudoseizures: seizures that are not epilepsy. *Lancet* 1990;**336**:163–4.
8. Oto M, Russell A, McGonigal A, et al. Lesson of the week: misdiagnosis of epilepsy in patients prescribed anticonvulsant drugs for other reasons. *British Medical Journal* 2003;**326**:326–7.
9. Barry J, Atzman O, Morrell M. Discriminating between epileptic and non epileptic events: the utility of hypnotic seizure induction. *Epilepsia* 2000;**41**:81–4.
10. Francis P, Baker G. Nonepileptic attack disorder (NEAD): a comprehensive review. *Seizure* 1999;**8**:53–61.
11. Bowman ES, Markland O. Psychodynamic and psychiatric diagnosis of pseudoseizure subjects. *American Journal of Psychiatry* 1996;**153**:57–63.
12. Cartmill A, Betts T. Seizure behaviour in a patient with post traumatic stress disorder following rape. *Seizure* 1992;**1**:33–6.
13. Substance misuse detainees in police custody – guidelines for clinical management. Association of Police Surgeons and Royal College of Psychiatrists; June 2000.
14. Annegers JF, Coan SP. SUDEP: overview of definition and review of incidence data. *Seizure* 1999;**8**:347–52.
15. Nilsson L, Farahmand B, Persson P, et al. Risk factors for sudden unexpected death in epilepsy – case study. *Lancet* 1999;**353**:888–93.
16. Langan Y. Review: sudden unexpected death in epilepsy SUDEP – risk factors and case control studies. *Seizure* 2000;**9**:179–83.
17. Kreitman N. Suicide and Parasuidide. In: Kendall R, Zeally A, editors. *The Companion to Psychiatric Studies*. 5th Edition. Edinburgh: Churchill Livingstone; 1993.